SEMANTIC POSITIONING

Supporting Knowledge Work through Semantic Spatial Arrangements

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Abstract

Semantics as a research field within computing is mostly based on a textual representations (e.g. ontologies). Still, interpretation and codification of meaning by *spatial arrangement* is at least as common in every day usage. Humans need to arrange and position knowledge artifacts in meaningful ways to gain differential experience. On desks media objects are arranged and each position has a specific semantic meaning, like documents on a pile being "to do"-items. Additionally, relevant actions and even social rules are associated with *semantic positions*. Cleaning personnel may empty the trash bin, but not pick up scrunched papers from the desk. *Semantic Positioning* refers to these kinds of spatial arrangements in digital media, where an object gains meaning simply by its position in a context. This allows evaluating the semantic positions of objects and the invocation of matching responsive behavior in the system. Based on this, the main research contributions of this thesis are a developed framework for the creation of semantic overlay arrangements and showing that by respective evaluations of position, benefits can be achieved for knowledge workers. The Semantic Positioning Framework distinguishes five types of spatial arrangement (*distance*, *order*, *inclusion*, *combination* and *path*) and describes markers that map information to space. Finally, three knowledge work and learning scenarios are presented to demonstrate how users can be supported through Semantic Positioning.